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Antecedents of growth through mergers and acquisitions: Empirical results from Belgium☆

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ABSTRACT

This paper empirically investigates the antecedents of growth through mergers and acquisitions (M&As) in a typical continental European country, Belgium. The article reports on a study using data on 484 private and listed bidders engaging in 990 M&As during 1997–2007, and matches this sample with companies that did not pursue any external growth. By analyzing firm characteristics, industry, and aggregate financial market variables, the study can also discern the motives that are important in the decision to acquire. The results show that neither the firm's cash position nor its cash-generating abilities influence its choice to grow externally. Yet, intangible assets affect the M&A decision positively, whereas ownership concentration and bank loans have a negative effect. In industries where incumbents are operating at a lower scale and in more highly concentrated industries, the odds of firms participating in M&As are larger. Industry deregulation, industry growth, and financial market conditions have no influence. These findings are largely comparable across listed and private firms. Yet, the data do reveal that the operating scale of industry incumbents and industry concentration matter only in horizontal and domestic takeover decisions.

1. Introduction

Mergers and acquisitions (M&As) are a popular means of growth for firms. In 2007 alone, 35,982 deals were announced worldwide, accounting for an aggregate deal value of USD 1,345 billion in the USA and USD 3,053 billion in Europe. While several studies have used logit/probit regression analysis to examine the company features that likely make firms takeover *targets* (e.g., Dietrich and Sorensen, 1984; Palepu, 1986; Powell, 2001), only a few papers analyze the characteristics of bidding companies. Furthermore, these articles have focused on M&As in the Anglo-Saxon world, typically during the fourth wave. Trahan (1993) and Sorensen (2000), for example, use data from the USA, whereas Hay and Liu (1998) consider M&As in the UK. These studies conclude that the likelihood of external growth is related to a variety of firm characteristics. In particular, they document a positive relation with firm size, profitability, and the market-to-book ratio, while leverage has a significant negative effect. However, the latter authors do not thoroughly investigate the influence of industry and aggregate financial market variables on external growth decisions. Hence, firm size could spuriously capture the impact of industry concentration, while the market-to-book ratio may reflect the ease of bidding companies to compensate target investors with stock when share prices are soaring. In contrast, this paper pays careful attention to industry characteristics, such as the potential for economies of scale, industry sales concentration, deregulation and industry growth, and aggregate financial market variables, including stock prices and interest rates, in the M&A decision.

Unlike earlier research, this article examines M&As in the fifth wave in a typical continental European country, viz. Belgium. M&As in the fourth wave, taking place particularly in the USA, were initiated for different reasons than more recent transactions. Gaughan (2002), for example, argues that M&As in the 1980s were the result of significant inefficiencies in the way (conglomerate) corporations were run on the one hand and the increased size of financial markets on the other hand. Hence, M&As in the fourth wave have been characterized by hostility and a heavy use of debt. In contrast, Weston and Jawien (1999) contend that the most recent M&A wave, which started in the mid-1990s, was largely engendered by global competition, technological change, and deregulation. The integration process in Europe has further strengthened this wave, making the number and dollar value of M&As in Europe

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as important as in the USA for the first time in history. According to Bruner (2004), the development of the EU has simplified the transfer of technology and intellectual capital, the realization of scale economies, and deregulation. In sum, the above arguments stress the need to also incorporate industry and financial market variables when analyzing the antecedents of external growth in a continental European setting, which this paper does.

The reason why this article explores Belgian data is that all corporations in Belgium must file their annual financial statements with the National Bank as of start-up, irrespective of their listing. This rule provides unique access to the accounting data of more than 390,000 firms, covering more than 80% of Belgian GDP. Besides, Belgium is one of the few countries in which ownership data are publicly available for a large number of unlisted firms. While Belgium offers a unique setting for an M&A study like this, the figures reported by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) and Giannetti (2003) indicate that the institutional characteristics of Belgium are largely comparable to those of other major countries in continental Europe. In fact, Belgian law is representative for the family of French civil-law systems. Also, as shown by Faccio and Masulis (2005) and Martynova and Renneboog (2006), among others, the characteristics of the M&As initiated by Belgian acquirers are similar to those in other countries on the Continent.

Yet, corporate ownership and governance structures in continental Europe, for example in Belgium, are very different from those in Anglo-Saxon countries, which tends to further increase the value of a European M&A study. First, the number of listed firms is much lower in the average continental European country than in the USA. Market capitalization as a percentage of GDP equals 133.6 percent in the USA, whereas the average for EU-countries is only 86.1 percent. Hence, while the literature to date has largely concentrated on *listed* acquirers, a study on the antecedents of M&As in continental Europe should also include data on private bidders, as done in this article. Private enterprises may have difficulties in financing their growth, especially M&As, as these deals cannot be implemented in subsequent stages. Besides, when target shareholders are unwilling to accept the stock of a private bidder, private acquirers may have no alternative than to finance their M&As by means of internal sources and bank loans. So, financial constraints could induce private firms to grow organically or even forego growth.

These financial constraints may also apply to listed firms, as publicly quoted firms in continental Europe have high ownership concentration on average. La Porta et al. (1998) show that the median ownership stake of the three largest owners equals 62 percent in Belgium, compared to only 12 percent in the USA. Controlling shareholders could thus be reluctant to issue new stock to pay for their firm's M&As in order not to dilute control. Conversely, when ownership is highly concentrated, incentive problems between managers and investors should be less severe on average. Managerial empire building and hubris should then also be less important to explain external growth decisions in continental Europe, ceteris paribus. To differentiate between ownership concentration curbing M&As because of the desire to maintain control vis-à-vis ownership concentration reducing managerial incentive problems, this paper also examines whether the role of ownership structure is different in industry-related versus unrelated M&As on the one hand and in domestic versus cross-border M&As on the other hand. Indeed, when managers pursue their own interests or when managers suffer from hubris, they could favor M&As that allow for industry and geographical diversification.

To examine the above research questions, this study uses data on 484 private and listed bidders that engaged in 990 M&As during 1997–2007. The multivariate logit regression results show that, unlike earlier Anglo-Saxon-based research, internal cash generation and cash reserves do not affect the M&A decisions of Belgian firms. Also, the interaction terms of these variables with ownership concentration are not significantly related to the probability of external growth. Yet, the impact of ownership concentration is significantly negative, especially at higher levels of ownership concentration. Likewise, firms relying more heavily on bank loans are less inclined to participate in M&As. Overall, these findings are inconsistent with Jensen's (1986) free cash flow theory, but suggest that internal (i.e., the desire to maintain control) and external (i.e., bank-driven) financial constraints restrict a firm's external growth. Next, intangible assets are associated positively with the M&A probability. Finally, the M&A decision relates to a number of industry characteristics. In industries where incumbents are operating at a lower scale and in highly concentrated industries, firms are more likely to engage in M&As. Aggregate financial market conditions bear no relation with external expansion. So, firms are not tempted into M&As solely because of favorable capital market conditions, which is consistent with the above-documented lack of managerial over-investment problems. Interestingly, these findings are largely comparable across listed and private firms. Yet, the data do reveal that the operating scale of industry incumbents and industry sales concentration matter only in horizontal and domestic takeover decisions.

The remainder of this article is organized as follows. Section 2 presents the various hypotheses, while Section 3 describes the sample. The results from the logit regression analyses as well as various robustness checks are reported and discussed in Section 4. Section 5 concludes.

2. Hypotheses

Scholars have developed numerous arguments to explain why firms may choose to participate in M&As (e.g., Gaughan, 2002; Trautwein, 1990; Weston et al., 2001). First, acquisitions often allow growing fast, as the target is an organization already in place, with its own production capacity, distribution network, and clientele. Besides, takeovers can be cheaper than internal expansion, in particular when the replacement cost of target assets exceeds their market value. Finally, and in contrast to organic growth, M&As can be (partly) paid for with stock, which could be interesting for firms with small cash reserves and/or limited debt capacity. Building on the above arguments, the sections hereafter develop testable predictions on how bidder characteristics, industry, and aggregate financial market variables could affect external growth decisions. Table 1 summarizes the various explanatory variables and their hypothesized relation with the M&A probability. When applicable, these variables are also related to the choice between a horizontal or industry-diversifying transaction and the choice between a domestic or cross-border M&A when pursuing external growth, thereby providing a rationale for split-sample analyses based on these deal characteristics.

2.1. Managerial motives and governance

Jensen (1986) argues that managers may have incentives to expand their firm beyond its optimal size. The reason is that growth generally increases managerial power and compensation. Besides, growth enables managers to diversify their wealth, including human capital, and improve job security when the target's cash flows are only imperfectly correlated with those of their own firm. Such a reduction in the combined firm's overall risk can be realized more easily by acquiring targets in non-related industries as well as by engaging in cross-border takeovers (e.g., Denis et al., 2002; Lloyd et al., 1987; Moeller and Schlingemann, 2005; Norton, 1993). So, the expectation is that firms subject to agency problems of equity pursue M&As that allow growing at a faster rate, and more specifically M&As diversifying across industries and countries. In addition, Roll (1986) contends that hubris, that is the excessive self-confidence of managers, is often another notable managerial rationale underlying M&As. Malmendier and Tate (2008) point out that those over-confident managers engage more in diversifying M&As. They also document that these transactions in particular are unlikely to create shareholder value.

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Table 1
The explanatory variables and their impact on the M&A probability.

Variable	Definition	Hypothesized sign
Managerial motives and governance		
- Easy access to internal financial resources		
EBITDA/ASSETS	The ratio of earnings before interest, taxes, depreciation and amortization to total assets	+
CASH RATIO	The ratio of cash and cash equivalents to total assets	+
EBITDA/ASSETS * OWN CONC	Interaction term between EBITDA/ASSETS and OWNERSHIP CONCENTRATION	−
CASH RATIO * OWN CONC	Interaction term between CASH RATIO and OWNERSHIP CONCENTRATION	−
- Monitoring and/or Financial constraints		
OWNERSHIP CONCENTRATION	The sum of squares of the percentage stakes held by the firm's various ultimate owners	−
BANK LOANS/ASSETS	The ratio of bank loans to total assets	−
Synergies		
- Realization of operating synergies		
INTANGIBLES/ASSETS	The ratio of intangible assets minus goodwill to total assets	+
INDUSTRY MES	Median of the natural logarithm of total assets of firms older than ten years in the corresponding four-digit SIC industry	+
- Realization of financial synergies		
BANK LOANS/ASSETS	The ratio of bank loans to total assets	+
Market power		
INDUSTRY CONCENTRATION	Herfindahl-Hirschman index, that is the sum of squares of the market shares of all firms in the corresponding four-digit SIC industry	+
INDUSTRY CONCENTRATION^2	Quadratic term in INDUSTRY CONCENTRATION	−
Industry shocks		
INDUSTRY DEREGULATION	Dummy variable that equals one if the industry has been deregulated, as of deregulation, and zero otherwise	+
INDUSTRY GROWTH	One-year lagged sales growth rate in the corresponding four-digit SIC industry	+/−
Financial market conditions		
P/E	The price/earnings ratio of the Belgian stock market (using the Belgian All Shares index)	+/−
YIELD SPREAD	The difference between the average yield on European corporate bonds with rating BBB and the average yield on Belgian government bonds, both with a duration of five years	−
TERM SPREAD	The difference between the average yield on Belgian government bonds with a duration of five years and the yield on a Belgian Treasury Note with a maturity of three months	−

Note. This table presents the definition of the various explanatory variables and the hypothesized sign of their relation with the M&A probability.

Jensen further argues that especially managers in firms with large free cash flows initiate value-decreasing takeovers. Likewise, Morck, Shleifer, and Vishny (1990) conclude that managers in good-performing firms are most likely to be infected by hubris. So, both the agency and the hubris hypotheses predict a positive relation between a firm's access to internal resources and its M&A probability. To proxy for internal cash generation, this study uses the ratio of EBITDA to total assets. Alternatively, the cash ratio is utilized to capture the effect of ready-available cash reserves built up from retained earnings. An important point regarding managerial motives underlying the positive relation between internal resources and M&A decisions is that this relation should be weaker for firms with concentrated ownership. Indeed, when a few large shareholders monitor the management closely, managerial over-investment problems tend to occur less. So, if managerial self-serving behavior and/or hubris are prevalent and concentrated ownership restrains wasteful investment decisions, the interaction term between internal cash generation (cash ratio) and ownership concentration should be significantly negative. To capture ownership concentration, this article uses the Herfindahl-Hirschman (HH) concentration index, which is defined as the sum of squared ownership stakes (e.g., Céspedes et al., in press).

Besides, ownership concentration by itself could capture the notion that large owners care about preserving control and thus avoid issuing new stock. As the opportunities to finance M&As are now restricted, the odds of external growth could be adversely affected too, resulting in a negative coefficient on ownership concentration. Arguably, although the likelihood of managerial self-serving behavior underlying M&A decisions is smaller when shares are closely held, a negative coefficient on ownership concentration by itself does not allow concluding that agency problems and/or hubris are prevalent. The coefficients on the above cash (flow) variables and especially their interactions with ownership concentration should be more informative for this purpose.

Next, Jensen claims that debt-service obligations reduce the free cash flows available for spending at managerial discretion. Simultaneously, firms that have fully used their debt capacity face more severe financial constraints. As the firms in this study typically raise debt from banks rather than in the public bond market, this paper conjectures a negative coefficient on the fraction of assets that is financed by means of bank loans in the external growth equation. Also, when bank monitoring helps to prevent value-destroying M&As, this variable should matter especially in takeovers diversifying across industries and countries.

2.2. Synergies

Synergy benefits refer to the ability of a corporate combination to be more profitable than the individual units that are combining. This paper examines the role of operating as well as financial synergies. First, owning unique technology and knowledge may create an opportunity to realize M&A synergies from transferring these intangibles to the target firm (Lehto and Lehtoranta, 2004). The industrial organization (IO) literature claims that R&D effects may arise in both horizontal and industry-diversifying acquisitions. When firms are active in the same line of business, M&As can lead to economies of scale in R&D input; if not, M&As can also create value from uniting complementary know-how (e.g., Cassiman et al., 2003). Likewise, intangibles could matter in domestic as well cross-border takeovers (e.g., Kang and Johansson, 2000). The ratio of intangible assets (minus goodwill paid in earlier M&As) to total assets is used to examine these ideas.

Next, the study investigates the potential for more general economies of scale in an industry. The underlying rationale is that prior to their M&A, firms are operating at levels of activity that fall short of achieving low per-unit costs. Following the IO literature, the industry minimum efficient scale (MES) is proxied by the median natural log of total assets in the corresponding four-digit SIC industry. Like Huyghebaert and Van de Gucht (2004), only industry incumbents older than ten years are considered to calculate the industry MES, as business start-ups typically enter the industry at a small size. When firms use M&As to realize scale economies in a faster manner, the relation between the industry MES and external growth should be positive. What's more, economies of scale are expected to be important especially in horizontal M&As. Indeed, the likelihood that bidder and target assets can be integrated physically after a deal tends to be higher in such takeovers (see Devos et al., 2009). For the same reason, scale economies possibly matter only in domestic M&As.

Finally, this article examines the motive to realize financial synergies by looking at the capital structure of potential acquirers.

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The idea is that firms relying heavily on bank loans may seek to reduce quickly their overall risk and realize a lower cost of capital by engaging especially in industry-diversifying and in cross-border M&As. Indeed, when the cash flows from target and bidder are not highly correlated, such transactions could reduce the cost of capital and even create additional borrowing capacity post-M&A.

2.3. Market power

In highly concentrated industries, firms tend to recognize the impact of their policies and actions on one another. This behavior could influence firm reactions to changes in competitive decisions, like quantity restrictions, and result in tacit collusion. Horizontal M&As to increase the concentration within an industry may help firms to realize such market power. For instance, Kim and Singal (1993) and Krishnan and Krishnan (2003) report enlarged pricing power following M&As in the airline and hospital industry, respectively. Conversely, when the industry is already highly concentrated, the incidence of M&As could be lower, as less room for further consolidation remains. Also, antitrust authorities may closely scrutinize newly planned deals in concentrated industries. To capture industry concentration, this article uses the Herfindahl-Hirschman (HH) concentration index, capturing the sum of squared market shares. Based upon the above arguments, a quadratic term in industry concentration is also included to seize a possible non-linear effect.

2.4. Industry shocks

Deregulation could be an important determinant of M&A activity across industries, as deregulation removes artificial constraints on the size of incumbents and incites new firms to enter. Hence, to adapt to the changes engendered by deregulation, industries need to restructure, which can be facilitated by M&As (Mitchell and Mulherin, 1996; Harford, 2005). To test the effects of deregulation, this study creates a dummy that equals one as of the year of industry deregulation and zero otherwise. During the period of the analyses, European policy makers have made special efforts in the further deregulation of network industries.

Besides, major changes in the demand and supply conditions in an industry can cause a shift in the number and size of firms operating in that industry. Various researchers have pointed out a link between abnormally low or exceptionally high industry growth rates and takeover activity. On the one hand, industry growth could be negatively related to the M&A probability when especially firms in low-growth industries participate in M&As (e.g., Powell and Yawson, 2005). The reason is that firms in mature or declining industries may want to shift their resources into growing industries or into new markets abroad, to guarantee their long-run survival. Alternatively, firms in low-growth industries may be obliged to consolidate in their own industry. Yet, under this bankruptcy-avoidance hypothesis, firms with poor growth prospects should engage mostly in horizontal M&As. On the other hand, Andrade and Stafford (2004) argue that particularly firms in high-growth industries become acquirers, provided they can collect the funds needed to buy peers. This relation arises when firms try to benefit as much as possible from the high growth in their industry via (fast) M&As. When industry growth influences the M&A decision positively, deals should be horizontal in nature, all else constant. When, because of globalization, favorable industry conditions are not limited to a single country, this relation may also extend to cross-border M&As.

In sum, the data have to reveal the true relation between industry growth and the likelihood and nature of M&As. This article uses the one-year lagged sales growth rate in the corresponding industry to investigate its influence. By incorporating the lagged real GDP growth rate as a control variable, the effect of industry growth can be isolated better from that of the economy as a whole.

2.5. Exploiting financial market conditions

If stock prices are depressed, the takeover of a listed firm can constitute a bargain relative to investing in new facilities from scratch. Moreover, once stock market sentiment is down, the valuation of private targets likely is lower too, through the use of a higher risk premium or through the use of lower multiples when valuing target stock. This under-valuation hypothesis thus suggests that stock prices and M&A decisions are negatively related. In contrast, soaring stock prices can facilitate the financing of M&As by using bidder stock to pay for these deals. Shleifer and Vishny (2003) indeed argue that firms tend to issue new shares when they consider their stock to be over-valued. The latter argument suggests a positive relation between stock prices and external growth. Yet, when a sample is dominated by private enterprises, as in this study, such a positive relation may be difficult to observe, also because target investors may be unwilling to accept non-listed bidder stock. In addition, bidder owners may be reluctant to issue new shares when they care about preserving control. This study uses the average market-wide price-earnings (P/E) ratio at the M&A announcement date to capture stock market conditions, given that private firms dominate the sample.

Finally, the study controls for the yield spread between corporate and government bonds and the term spread between long-term and short-term interest rates, as these spreads could affect financing decisions and hence also investment decisions. A higher yield spread (term spread) increases the cost of borrowing, thereby negatively affecting firm investment rates. So, this paper expects a negative coefficient on the yield spread (term spread), independent of the deal's industry and geographical focus. The yield spread is measured as the difference between the average yield on European corporate bonds with BBB-rating and five-year duration and the average yield on Belgian government bonds with the same duration. The term spread is calculated as the difference between the yield on five-year Belgian government bonds and the yield on three-month Belgian Treasury Notes.

3. Sample

The M&As in this study were collected from the Zephyr database, which contains detailed information on more than 500,000 M&As worldwide, with pan-European deals dating back to 1997. No minimum deal value is required in order for deals to be included in Zephyr. Also, M&As involving public as well as private bidders are covered. Compared to the SDC Platinum database of Thomson Financial and Mergerstat, the Zephyr database covers deals of smaller value and has a better coverage of European transactions. Interestingly, the information in Zephyr can be easily combined with the financial statements in Belfirst, as both are commercialized by Bureau Van Dijk. Belfirst also provides information on the activities of firms, by means of their four-digit SIC codes.

The study first considered all announced M&As covered by Zephyr, irrespective of their completion. The rationale for its focus on announced deals is that this study is interested in the motives underlying M&As, regardless of the outcome of a planned deal. Using Zephyr, the study identified a sample of 548 Belgian bidders that are covered by Belfirst, that report information on their activities in Belfirst, and that announced at least one M&A during 1997–2007. As the annual accounts of banks, real estate investment trusts, insurance companies, and holdings are compiled in another manner, firms with a main SIC code starting with '6' were excluded. As a result, the sample contains no private-equity deals either. Overall, these 548 firms engaged in 1,105 M&As during the sample period. Fig. 1 reveals that M&A activity in Belgium follows the same pattern as that in continental Europe, while Fig. 2 shows that average deal size is also comparable.

Some of the announced M&As are deals where the bidder already owned a controlling stake in the target and thus simply announced to increase this block. As the latter deals do not (uniquely) reflect a firm's

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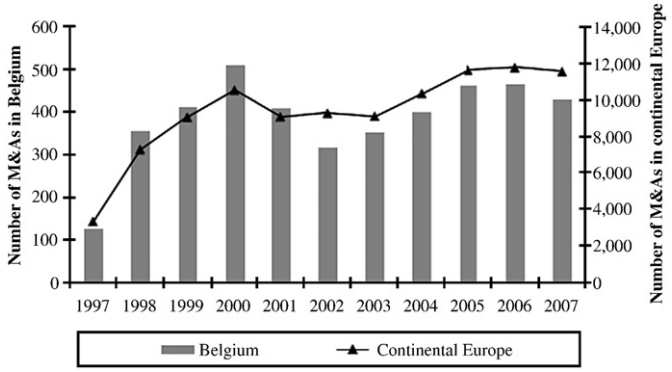

Fig. 1. M&A activity in Belgium and in continental Europe. Source: The Zephyr database.

intentions to pursue external growth, all deals where the acquirer owned 50 percent of target stock before the M&A announcement were removed (98 deals). Finally, the M&As that were initiated shortly after the bidder's IPO were also deleted (17 deals). The reason is that several firm characteristics, such as firm size, leverage, asset structure, etc., are affected by the IPO, which tends to introduce noise in the variable measurements. These selection criteria resulted in a final sample of 484 bidders that engaged in 990 M&As during 1997–2007. Not surprisingly, 38% of acquirers are publicly quoted, whereas only 3% of targets are listed.

Table 2 provides an overview of various deal characteristics. Approximately 80% of sample transactions were completed by December 2008, the moment of data collection. The sample is largely dominated by takeovers (96%). Deals are almost exclusively friendly in nature, which notes a marked difference with the US market, particularly during the fourth wave. Based upon four-digit SIC codes, 48% of transactions are classified as industry-related (horizontal). Besides, 49% of sample deals are cross-border, which exceeds considerably the number reported in studies using US data (e.g., Moeller and Schlingemann, 2005). The high incidence of cash payments (74%), contrasting again with US evidence, is consistent with the idea that bidder owners care about preserving control. Table 2 also reports deal characteristics for public versus private bidders, revealing that listed acquirers participate more often in industry-diversifying and in cross-border M&As. Besides, cash is used more frequently when the acquirer is privately held.

Overall, 332 bidders engaged in one M&A, 74 in two M&As, and 78 in three or more takeovers in a particular year. If an acquirer initiated multiple M&As in the same year, the firm was included in the analyses only once for that year, thereby reducing the final sample size to 733

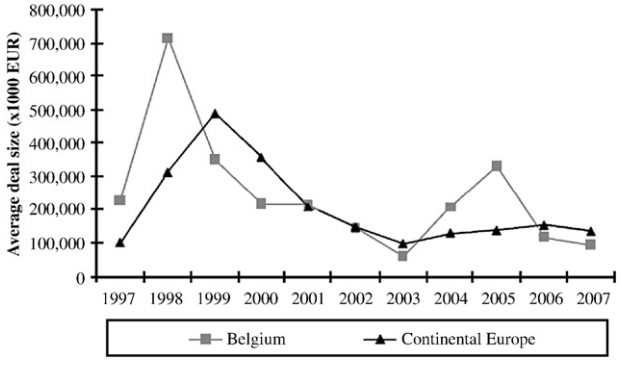

Fig. 2. Average deal size in Belgium and in continental Europe. Source: The Zephyr database.

Table 2
Deal characteristics.

	Full sample		Public bidders		Private bidders	
	N	%	N	%	N	%
Completed	795	80.30	305	81.77	490	79.42
Announced	187	18.89	64	17.16	123	19.94
Withdrawn	8	0.81	4	1.07	4	0.65
Mergers	37	3.74	0	0.00	37	6.00
Acquisitions	953	96.26	373	100.00	580	94.00
Hostile	9	0.91	5	1.34	4	0.65
Friendly	981	99.09	368	98.66	613	99.35
Industry-related	475	47.98	143	38.34	332	53.81
Industry-diversifying	515	52.02	230	61.66	285	46.19
Domestic	504	50.91	117	31.37	387	62.72
Cross-border	486	49.09	256	68.63	230	37.28
Cash payment	98	73.68	58	65.91	40	88.89
Stock payment	35	26.32	30	34.09	5	11.11

Note. This table reports summary statistics on M&A characteristics. The table provides an overview of the number of completed, announced, and withdrawn deals, the number of mergers and acquisitions, the number of hostile and friendly deals, the number of industry-related and industry-diversifying deals (using bidder four-digit SIC codes), the number of domestic and cross-border deals, and the number of deals that were paid entirely in cash and in stock, respectively. The information on the method of payment is based on only 134 deals, due to limited data availability for this item. These numbers are reported for the full sample as well as for the subgroups of public (i.e. listed) and private (i.e. unlisted) bidders.

observations. For each event firm, a non-acquiring company was selected from Belfirst, resulting in a total sample of 1,466 observations. This matching firm was identified as the company with the same public/private status, of similar size (total assets), and not involved in M&As during a two-year historical period. The explanatory variables for both the acquiring and matching firms are measured one year before the transaction. For the firms that belong to a corporate group (35%), the firm-level characteristics are calculated based on the *consolidated* financial statements, whenever available. This approach accounts for asset shifting and the creation of internal capital markets between the members of an industrial group (George and Kabir, 2008). When the acquiring or matching firm is a group member but does not consolidate itself, the consolidated accounts of the ultimate owner were collected. Belfirst was also the main source for firm ownership information and the industry-level data. To capture a shareholder's *ultimate* ownership, this study considers its direct as well as indirect ownership. Stock market data were collected from Datastream and Belgostat, whereas the real GDP growth rate was downloaded from Eurostat. The latter databases contain an extensive number of macro-economic and development statistics for Belgium and EU-members, respectively. Finally, bond yields were retrieved from Bloomberg. To limit the influence of outliers, all variables – except for dummy variables – were winsorized at 5–95 percent.

Table 3 contains summary statistics on the various explanatory variables. For the firm-level and industry characteristics, the table also reports the *p*-values of a parametric *t*-test and a non-parametric Wilcoxon rank-sum test to decide whether these variables are significantly different across acquiring and matching firms. Table 3, Panel A shows that the average ratio of EBITDA to total assets equals 10.2% for event firms and 9.5% for matching firms, which is significantly different only under a Wilcoxon test. Likewise, the cash ratio is somewhat larger for M&A bidders (9.9%) than for non-acquiring firms (9.4%). Average ownership concentration equals 47.5% in the sample of acquirers, which is significantly below the 74.5% of matching firms. In bidding (matching) firms, the largest owner on average holds a stake of 58.3% (77.3%). The ratio of bank loans to assets is comparable across

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Table 3
Summary statistics.

Panel A: Bidding versus matching firms

	Bidding firms			Matching firms			*t*-test	Wilcoxon test
Firm characteristics	*Mean*	*Median*	*Std. Dev.*	*Mean*	*Median*	*Std. Dev.*	*p-value*	*p-value*
EBITDA/ASSETS	0.1021	0.0921	0.0937	0.0949	0.0789	0.0908	0.1320	**0.0941**
CASH RATIO	0.0991	0.0510	0.1200	0.0942	0.0363	0.1288	0.4419	**0.0036**
OWNERSHIP CONC	0.4747	0.3557	0.3908	0.7452	1.0000	0.3742	**0.0000**	**0.0000**
LARGEST OWNER	0.5825	0.5208	0.3380	0.7726	1.0000	0.3216	**0.0000**	**0.0000**
BANK LOANS/ASSETS	0.2331	0.1874	0.2753	0.2419	0.1774	0.2498	0.5279	0.5819
INTANGIBLES/ASSETS	0.0136	0.0009	0.0254	0.0076	0.0000	0.0206	**0.0000**	**0.0000**
FIRM SIZE	10.4472	10.4654	2.2923	10.3882	10.4088	2.2378	0.6462	0.6322
Industry variables								
INDUSTRY MES	6.3798	6.1025	1.1266	6.5151	6.2710	1.1154	**0.0181**	**0.0030**
IND CONCENTRATION	0.1418	0.0814	0.1527	0.1299	0.0707	0.1410	0.1226	0.1801
IND DEREGULATION	0.0191	0.0000	0.1370	0.0181	0.0000	0.1335	0.8916	0.9746
INDUSTRY GROWTH	0.0765	0.0484	0.1720	0.0840	0.0633	0.1724	0.4258	0.1272
Financial market variables								
GDP GROWTH	0.0211	0.0168	0.0108					
P/E	13.8737	14.0000	3.2239					
YIELD SPREAD	0.0102	0.0086	0.0048					
TERM SPREAD	0.0101	0.0101	0.0054					

Panel B: Horizontal versus industry-diversifying takeovers

	Horizontal takeovers			Industry-diversifying takeovers			*t*-test	Wilcoxon test
Firm characteristics	*Mean*	*Median*	*Std. Dev.*	*Mean*	*Median*	*Std. Dev.*	*p-value*	*p-value*
EBITDA/ASSETS	0.1034	0.0904	0.0942	0.1015	0.0934	0.0936	0.7934	0.8266
CASH RATIO	0.0990	0.0510	0.1166	0.0993	0.0507	0.1221	0.9764	0.6967
OWNERSHIP CONC	0.5225	0.4159	0.3893	0.4517	0.3181	0.3897	**0.0509**	**0.0660**
LARGEST OWNER	0.6266	0.5855	0.3321	0.5615	0.5016	0.3387	**0.0377**	**0.0450**
BANK LOANS/ASSETS	0.2394	0.1932	0.3602	0.2299	0.1864	0.2159	0.6541	0.6208
INTANGIBLES/ASSETS	0.0114	0.0004	0.0236	0.0148	0.0012	0.0264	**0.0851**	**0.0417**
FIRM SIZE	9.9053	9.6861	2.1036	10.7365	10.8671	2.3372	**0.0000**	**0.0000**

Panel C: Domestic versus cross-border takeovers

	Domestic takeovers			Cross-border takeovers			*t*-test	Wilcoxon test
Firm characteristics	*Mean*	*Median*	*Std. Dev.*	*Mean*	*Median*	*Std. Dev.*	*p-value*	*p-value*
EBITDA/ASSETS	0.1017	0.0882	0.0997	0.1027	0.0955	0.0869	0.8917	0.5335
CASH RATIO	0.1012	0.0510	0.1195	0.0970	0.0507	0.1209	0.6395	0.2743
OWNERSHIP CONC	0.5186	0.4038	0.3932	0.4356	0.2773	0.3846	**0.0155**	**0.0484**
LARGEST OWNER	0.6209	0.6017	0.3377	0.5486	0.5000	0.3343	**0.0146**	**0.0359**
BANK LOANS/ASSETS	0.2328	0.1628	0.3263	0.2337	0.1997	0.2063	0.9628	0.1994
INTANGIBLES/ASSETS	0.0140	0.0011	0.0263	0.0132	0.0009	0.0245	0.6907	0.7202
FIRM SIZE	9.9973	9.6348	2.2785	10.9302	11.0985	2.2062	**0.0000**	**0.0000**

Panel D: Public versus private bidders

	Public bidders			Private bidders			*t*-test	Wilcoxon test
Firm characteristics	*Mean*	*Median*	*Std. Dev.*	*Mean*	*Median*	*Std. Dev.*	*p-value*	*p-value*
EBITDA/ASSETS	0.1145	0.1073	0.0898	0.0987	0.0846	0.0946	**0.0580**	**0.0316**
CASH RATIO	0.0889	0.0408	0.1224	0.1021	0.0534	0.1194	0.2181	**0.0013**
OWNERSHIP CONC	0.2292	0.1788	0.1932	0.5749	0.5627	0.4060	**0.0000**	**0.0000**
LARGEST OWNER	0.3927	0.3760	0.2160	0.6603	0.7307	0.3474	**0.0000**	**0.0000**
BANK LOANS/ASSETS	0.1833	0.1579	0.1518	0.2474	0.1990	0.3000	**0.0089**	**0.0438**
INTANGIBLES/ASSETS	0.0210	0.0052	0.0307	0.0115	0.0007	0.0233	**0.0000**	**0.0018**
FIRM SIZE	12.4754	12.5180	1.5957	9.8661	9.6856	2.1242	**0.0000**	**0.0000**

Note. Panel A in this table reports the mean, median, and standard deviation of the various firm characteristics, industry, and aggregate financial market variables for bidding firms and their matching counterparts. For each firm and industry characteristic, the table also reports the *p*-value of a parametric *t*-test and a non-parametric Wilcoxon rank-sum test that compare firms engaging in M&As in a particular year with firms that did not. Panels B, C and D report results for acquirers only, after splitting the event sample based upon whether the M&A is horizontal or industry-diversifying, whether the M&A is domestic or cross-border, whether the bidder is a public or private firm, respectively. *p*-values that are significant at the 10% level are highlighted in bold.

event and matching firms, while acquirers have a larger fraction of intangible assets. Unsurprisingly, M&A bidders and matching firms have a similar size.

Regarding industry variables, Panel A reveals that the average size of incumbent firms (6.4) is much smaller than that of acquirers (10.4). Together, these results point out in a univariate manner that M&A bidders are the largest firms in their industries. Next, the average bidder industry has a HH concentration index of 14.2% and grows by 7.7% per annum; these numbers are comparable to those of the matching-firm industries. Real GDP on average grows by 2.1% per year. The average P/E ratio for the Belgian stock market is 13.9 per annum during 1997–2007, with a standard deviation of 3.2. The average yield spread (term spread) equals 1.02% (1.01%).

Panels B–C report separate summary statistics on the characteristics of firms engaging in horizontal versus industry-diversifying M&As, and in domestic versus cross-border M&As. Differences are limited, concerning particularly the firm's ownership structure and size. In contrast, Panel D shows that the disparities between public and private bidders are much more pronounced. In particular, public bidders have a larger ratio of EBITDA to assets, a lower cash ratio, a smaller ownership concentration, a lower ratio of bank loans to assets, a higher fraction of intangible assets, and a larger firm size.

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4. Empirical results

In the regression models hereafter, the dependent variable is a binomial choice variable that equals one if a firm grows through M&A in a particular year and zero otherwise. An analysis of the correlations among the explanatory variables only revealed a too high correlation between the P/E ratio and the yield spread ($\rho = -0.79$). So, the base regression models just include the P/E ratio; this variable is then replaced with the yield spread in additional tests (see further). Finally, all models account for a potential correlation of error terms across observations because of M&A clustering by applying the Huber-White correction to standard errors.

The logit regression models hereafter first consider the entire sample of acquiring and matching firms. Next, the sample was split to examine the drivers of external growth in various subsamples.

4.1. M&A decisions in the entire sample

The logit regression output for the entire sample is presented in Table 4. Panel A reports the results with EBITDA/total assets, whereas Panel B uses the cash ratio. In column 1 of each panel, the models include simple terms in EBITDA/total assets and the cash ratio, while these variables are interacted with (1–ownership concentration) in column 2. A first simple interaction with ownership concentration revealed too high correlations with EBITDA/total assets and the cash ratio. To solve this econometric problem, interaction variables with (1–ownership concentration) were computed and EBITDA/total assets (cash ratio) was removed from Panel A (B). This alternative specification allows testing the managerial-motives hypothesis in an equally valid manner; under this hypothesis positive parameter estimates on the interaction terms are expected. Building on the results of Morck, Shleifer, and Vishny (1988), column 3 of each panel is estimated with a simple and a quadratic term in ownership concentration, whereas dummies corresponding to various ownership intervals are used in column 4. In column 5, the stake of the largest owner is utilized. Finally, as ownership concentration is not known for all firms, the models in column 6 exclude this variable.

Table 4 shows that internal cash generation, proxied by EBITDA/total assets in Panel A, and available cash reserves, measured by the cash ratio in Panel B, do not affect the M&A decision. When free cash flows are calculated more directly following the study of Lehn and Poulsen (1989), this new variable remains unrelated to the M&A probability (not reported). So, firms are not tempted into M&As solely because of easy access to internal funds. These findings contrast with what has been documented earlier for Anglo-Saxon M&As (e.g., Hay and Liu, 1998; Malmendier and Tate, 2008; Sorensen, 2000; Trahan, 1993). Next, the coefficients on the interaction terms of EBITDA/total assets and the cash ratio with (1–ownership concentration) are not significant either. In sum, these results allow concluding that managerial motives are not a major force driving the M&A decisions of Belgian firms.

Yet, the results in columns 1–2 do reveal that firms with concentrated ownership are less inclined to participate in M&As, ceteris paribus. The regression output in columns 3–4 actually suggests that the negative impact of this variable is driven by the firms with the highest ownership concentration. Although a negative coefficient could indicate that large investors temper managerial over-investment problems by their monitoring, together the findings in this and the previous paragraph rather suggest that block holders care about preserving control. Indeed, the results for the cash (flow) variables provide no support at all for Jensen's free cash flow theory. In contrast, firms with large owners may be hampered to pursue M&As once these owners disapprove the idea of issuing new stock to compensate target investors. Finally, column 5 shows that the negative influence of ownership concentration endures when considering the stake of the firm's largest investor. Then, the simple term in ownership concentration becomes significantly positive.

The ratio of bank loans to total assets has a significant negative impact on external growth, in both panels. Yet, its effect becomes insignificant in column 6. While a negative sign is consistent with the bank monitoring and disciplining idea, the paper already revealed that managerial over-investment is not a main motive behind Belgian M&As. So, a negative coefficient on the bank loans variable most likely indicates that the obligation to make interest payments and repay the loan principal restricts the possibility to finance M&As. The notion that financial constraints are binding in a sample that is dominated by private enterprises is not surprising at all.

Interestingly, the ratio of intangible to total assets is significantly positively related to the probability of external expansion, thereby supporting the conjecture that operating synergies from transferring technology and intellectual capital to another firm are an important rationale underlying M&As. This conclusion is also compatible with the findings of Lehto and Lehtoranta (2004), showing that a firm's R&D stock contributes positively to its likelihood of becoming an acquirer.

Remarkably, the variable measuring the industry minimum efficient scale is significantly negatively associated with external growth, thereby pointing out that scale economies are not a major rationale behind the M&A decisions of Belgian firms. The latter relation also emerges when using other metrics (number of employees or sales) to calculate the industry MES. Arguably, these results can be justified by the relatively large size of acquirers, as shown in Table 3. Replacing the industry MES with a dummy that equals one when firm size exceeds the industry MES and zero otherwise or by a continuous variable relating firm size to the operating scale of incumbents reveals that both variables are not related to external growth. Finally, when the industry MES is interacted with a dummy capturing whether or not the firm files consolidated statements, to account for some firms having subsidiaries with separate legal identities, the above conclusions are not affected.

As the quadratic term in industry concentration was not significant in the first model of each panel, the variable was deleted from all subsequent models. Overall, the results in columns 2–6 indicate that the odds of external growth increase with industry concentration. A positive coefficient is in line with the market power hypothesis, but should be examined further in horizontal transactions (see Section 4.2).

Unlike Mitchell and Mulherin (1996) and Harford (2005), the results in this article do not support the notion that M&As occur more often in industries that experienced a recent deregulation. This conclusion is robust when setting the dummy equal to one as of one (two) year(s) before deregulation, to account for a potential anticipation of changes in industry regulation. Next, the relation between industry growth and M&A decisions is never significant, which contrasts with previous findings by Andrade and Stafford (2004) and Powell and Yawson (2005). GDP growth is not significant either, even not when this variable is measured in nominal rather than in real terms.

The under- or over-valuation hypotheses are not supported in Table 4, as the P/E ratio is never significant. This same conclusion arises when the P/E ratio is replaced with the one-year (or three-year) total return on the Belgian All Shares index or the Dow Jones Euro Stoxx index (not reported). Given the high average ownership concentration in the sample, these findings may not be too surprising as – consistent with the above results – owners may be reluctant to issue new shares to preserve control. Likewise, given the high incidence of cash payments, stock prices should be less important in explaining M&A decisions anyway. When the P/E ratio is replaced with the yield spread, the latter variable also bears no relation with the M&A probability. Finally, the term spread is never significant in Table 4. These findings are robust when using bonds with other durations to measure the yield and term spread (not reported). In

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Table 4
Logit regression results on the M&A decisions.

	(1)	(2)	(3)	(4)	(5)	(6)
PANEL A: Results with EBITDA/ASSETS						
C	**1.3777**	**1.3881**	**0.9980**	**0.9596**	**1.1965**	**0.8388**
	(0.0085)	**(0.0081)**	**(0.0610)**	**(0.0650)**	**(0.0321)**	**(0.0479)**
EBITDA/ASSETS	0.9357		0.8209	0.6769	0.8559	0.7852
	(0.1816)		(0.2430)	(0.3371)	(0.2291)	(0.1787)
EBITDA/ASSETS * (1–OWN CONC)		0.9385				
		(0.4698)				
OWNERSHIP CONCENTRATION	**- 1.6109**	**- 1.5271**	1.1877			
	(0.0000)	**(0.0000)**	(0.1597)			
OWNERSHIP CONCENTRATION^2			**- 2.5312**			
			(0.0008)			
LARGEST SHAREHOLDER					**1.9500**	
					(0.0444)	
LARGEST SHAREHOLDER^2					**- 2.9005**	
					(0.0003)	
DUMMY = 1 if 0.25<OWN<0. 50				0.1600		
				(0.4169)		
DUMMY = 1 if 0.50<OWN<0. 75				**- 0.7728**		
				(0.0063)		
DUMMY = 1 if 0.75<OWN<1.00				**- 1.3308**		
				(0.0000)		
BANK LOANS/ASSETS	**- 0.4928**	**- 0.4877**	**- 0.5103**	**- 0.4666**	**- 0.4835**	- 0.2612
	(0.0724)	**(0.0751)**	**(0.0659)**	**(0.0892)**	**(0.0866)**	(0.2538)
INTANGIBLES/ASSETS	**11.4319**	**11.3449**	**10.7250**	**10.7208**	**11.9779**	**11.9899**
	(0.0000)	**(0.0000)**	**(0.0001)**	**(0.0002)**	**(0.0001)**	**(0.0000)**
INDUSTRY MES	**- 0.1351**	**- 0.1397**	**- 0.1310**	**- 0.1242**	**- 0.1608**	**- 0.1754**
	(0.0397)	**(0.0312)**	**(0.0435)**	**(0.0539)**	**(0.0152)**	**(0.0011)**
INDUSTRY CONCENTRATION	0.6687	**1.0094**	**0.8654**	**0.8958**	**1.0295**	**1.1325**
	(0.6574)	**(0.0344)**	**(0.0717)**	**(0.0587)**	**(0.0376)**	**(0.0059)**
INDUSTRY CONCENTRATION^2	0.6880					
	(0.8070)					
INDUSTRY DEREGULATION	- 0.5613	- 0.5595	- 0.6067	- 0.6372	- 0.5536	- 0.1240
	(0.3110)	(0.3097)	(0.2784)	(0.2432)	(0.3368)	(0.7603)
INDUSTRY GROWTH	- 0.0515	- 0.0454	- 0.0579	- 0.0629	- 0.0890	- 0.3187
	(0.8910)	(0.9035)	(0.8783)	(0.8656)	(0.8172)	(0.3267)
GDP GROWTH	4.0671	3.9309	5.1161	4.6707	- 0.7129	0.1862
	(0.5002)	(0.5144)	(0.3990)	(0.4409)	(0.9085)	(0.9715)
P/E	- 0.0109	- 0.0105	- 0.0114	- 0.0064	- 0.0019	0.0046
	(0.5752)	(0.5898)	(0.5529)	(0.7405)	(0.9196)	(0.7792)
TERM SPREAD	2.6153	2.6835	3.2909	2.3060	- 16.9689	- 3.4751
	(0.8324)	(0.8283)	(0.7905)	(0.8526)	(0.1834)	(0.7426)
Number of observations	**1,207**	**1,207**	**1,207**	**1,207**	**1,207**	**1,446**
McFadden R-square	**0.0989**	**0.0981**	**0.1056**	**0.1029**	**0.0874**	**0.0218**
PANEL B: Results with CASH RATIO						
C	**1.6470**	**1.5659**	**1.2563**	**1.2161**	**1.4124**	**0.9474**
	(0.0018)	**(0.0034)**	**(0.0187)**	**(0.0200)**	**(0.0118)**	**(0.0280)**
CASH RATIO	- 0.7641		- 0.7429	- 0.8017	- 0.6143	- 0.1179
	(0.1432)		(0.1547)	(0.1232)	(0.2518)	(0.7904)
CASH RATIO * (1–OWN CONC)		- 0.5328				
		(0.5868)				
OWNERSHIP CONCENTRATION	**- 1.6316**	**- 1.6802**	1.1375			
	(0.0000)	**(0.0000)**	(0.1770)			
OWNERSHIP CONCENTRATION^2			**- 2.5026**			
			(0.0009)			
LARGEST SHAREHOLDER					**1.9621**	
					(0.0427)	
LARGEST SHAREHOLDER^2					**- 2.9284**	
					(0.0003)	
DUMMY = 1 if 0.25<OWN<0. 50				0.1385		
				(0.4810)		
DUMMY = 1 if 0.50<OWN<0. 75				**- 0.7897**		
				(0.0049)		
DUMMY = 1 if 0.75<OWN<1.00				**- 1.3547**		
				(0.0000)		
BANK LOANS/ASSETS	**- 0.5638**	**- 0.5000**	**- 0.5803**	**- 0.5465**	**- 0.5360**	- 0.2715
	(0.0447)	**(0.0713)**	**(0.0416)**	**(0.0514)**	**(0.0643)**	(0.2391)
INTANGIBLES/ASSETS	**11.6480**	**11.5293**	**10.9808**	**10.9904**	**12.1730**	**12.0695**
	(0.0000)	**(0.0000)**	**(0.0001)**	**(0.0001)**	**(0.0000)**	**(0.0000)**
INDUSTRY MES	**- 0.1496**	**- 0.1433**	**- 0.1432**	**- 0.1368**	**- 0.1699**	**- 0.1801**
	(0.0229)	**(0.0271)**	**(0.0275)**	**(0.0341)**	**(0.0105)**	**(0.0009)**
INDUSTRY CONCENTRATION	0.9587	**1.0277**	**0.9122**	**0.9414**	**1.0661**	**1.1620**
	(0.5239)	**(0.0309)**	**(0.0565)**	**(0.0463)**	**(0.0308)**	**(0.0046)**
INDUSTRY CONCENTRATION^2	0.1964					
	(0.9444)					

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Table 4 (*continued*)

	(1)	(2)	(3)	(4)	(5)	(6)
PANEL B: Results with CASH RATIO						
INDUSTRY DEREGULATION	- 0.5365	- 0.5439	- 0.5829	- 0.6169	- 0.5410	- 0.1171
	(0.3381)	(0.3300)	(0.3014)	(0.2626)	(0.3518)	(0.7762)
INDUSTRY GROWTH	- 0.0796	- 0.0530	- 0.0850	- 0.0954	- 0.1146	- 0.3174
	(0.8330)	(0.8877)	(0.8228)	(0.7979)	(0.7675)	(0.3285)
GDP GROWTH	4.0771	4.1399	5.0897	4.7179	- 0.8690	0.2304
	(0.4985)	(0.4912)	(0.4005)	(0.4360)	(0.8885)	(0.9646)
P/E	- 0.0118	- 0.0115	- 0.0123	- 0.0075	- 0.0024	0.0051
	(0.5438)	(0.5533)	(0.5231)	(0.7003)	(0.8990)	(0.7544)
TERM SPREAD	3.2819	3.2730	3.8063	2.7781	- 16.2489	- 3.3214
	(0.7904)	(0.7912)	(0.7581)	(0.8223)	(0.2021)	(0.7528)
Number of observations	**1,211**	**1,211**	**1,211**	**1,211**	**1,211**	**1,450**
McFadden R-square	**0.0998**	**0.0987**	**0.1064**	**0.1041**	**0.0879**	**0.0210**

Note. The dependent variable in this table equals one if the company grew through M&A in a particular year and zero otherwise. A company and its matching firm are included in the analyses only for the year of M&A. A definition of the explanatory variables and the hypothesized sign of their relation with the M&A probability are presented in Table 1. All explanatory variables are measured in the year before the transaction. Panel A presents the results with EBITDA/ASSETS, whereas panel B reports the results with CASH RATIO. The *p*-values are reported in parentheses. Variables that are significant at the 10% level are highlighted in bold.

sum, aggregate financial market conditions are found irrelevant in explaining the M&A decisions of Belgian firms.

4.2. M&A decisions in different subsamples

In this section, the results of various split-sample regression models are discussed. Table 5 reports the results for horizontal versus industry-diversifying takeovers, while Table 6 distinguishes between domestic and cross-border deals. If the bidder initiated multiple M&As in the same year, the classification alternatively considered whether at least one of the targets was from the same industry/country (reported) or whether all targets were from the same industry/country (not reported). The study ends by investigating whether the same forces matter for public and private firms (Table 7). DEREGULATION had to be removed from these split-sample tests, as the number of observations from deregulated industries is rather limited.

Tables 5–7 show that internal cash generation, the cash ratio, and their interactions with (1–ownership concentration) do not influence external growth decisions in the various subsamples, consistent with the earlier conclusion that neither agency problems of equity nor hubris are a predominant force underlying the M&A decisions of Belgian firms. Yet, Table 5 does reveal that the ratio of EBITDA to assets

Table 5
Logit regression results on horizontal versus industry-diversifying M&A decisions.

	Horizontal takeovers						**Industry-diversifying takeovers**					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
C	0.9236	1.0420	1.1604	**1.5771**	**1.7062**	1.6530	0.9075	0.9210	0.8902	1.0204	1.0356	0.9329
	(0.3681)	(0.3110)	(0.2608)	**(0.1140)**	**(0.0885)**	(0.1039)	(0.1559)	(0.1532)	(0.1663)	(0.1148)	(0.1122)	(0.1593)
EBITDA/ASSETS	**2.8253**	**2.8294**					- 0.1046	0.0126				
	(0.0273)	**(0.0286)**					(0.9020)	(0.9882)				
EBITDA/ASSETS * (1–OWN CONC)			2.0382						0.4984			
			(0.4029)						(0.7378)			
CASH RATIO				- 1.0917	- 1.2011					- 0.6013	- 0.5764	
				(0.2342)	(0.1915)					(0.3408)	(0.3658)	
CASH RATIO * (1–OWN CONC)						- 1.1644						- 0.1350
						(0.5354)						(0.9018)
OWNERSHIP CONCENTRATION	2.4970	2.3997	**2.6361**	2.3522	2.2675	2.1142	0.4881	0.5363	0.5616	0.4098	0.4630	0.4685
	(0.1032)	(0.1173)	**(0.0867)**	(0.1179)	(0.1313)	(0.1608)	(0.6367)	(0.6025)	(0.5836)	(0.6903)	(0.6515)	(0.6499)
OWNERSHIP CONCENTRATION^2	**- 3.7053**	**- 3.6281**	**- 3.6956**	**- 3.6593**	**- 3.5901**	**- 3.5507**	**- 1.8895**	**- 1.9272**	**- 1.9065**	**- 1.8192**	**- 1.8620**	**- 1.8773**
	(0.0060)	**(0.0071)**	**(0.0054)**	**(0.0060)**	**(0.0068)**	**(0.0072)**	**(0.0413)**	**(0.0368)**	**(0.0391)**	**(0.0482)**	**(0.0426)**	**(0.0408)**
BANK LOANS/ASSETS	- 0.0624	- 0.0920	- 0.1058	- 0.1633	- 0.2022	- 0.1118	**- 0.7987**	**- 0.8243**	**- 0.8310**	**- 0.8664**	**- 0.8852**	**- 0.8235**
	(0.8973)	(0.8518)	(0.8290)	(0.7366)	(0.6823)	(0.8190)	**(0.0237)**	**(0.0204)**	**(0.0189)**	**(0.0170)**	**(0.0153)**	**(0.0216)**
INTANGIBLES/ASSETS	**9.7010**	**9.2343**	**8.8112**	**9.3218**	**8.8335**	**8.8916**	**10.6371**	**11.1736**	**11.1500**	**10.9164**	**11.4370**	**11.2528**
	(0.0648)	**(0.0815)**	**(0.0971)**	**(0.0780)**	**(0.0976)**	**(0.0923)**	**(0.0014)**	**(0.0007)**	**(0.0007)**	**(0.0010)**	**(0.0005)**	**(0.0007)**
INDUSTRY MES	**- 0.2011**	**- 0.2432**	**- 0.2530**	**- 0.2477**	**- 0.2932**	**- 0.2750**	- 0.0743	- 0.0549	- 0.0559	- 0.0794	- 0.0602	- 0.0550
	(0.0804)	**(0.0349)**	**(0.0282)**	**(0.0327)**	**(0.0118)**	**(0.0173)**	(0.3548)	(0.5022)	(0.4961)	(0.3223)	(0.4618)	(0.5033)
INDUSTRY CONCENTRATION	**1.8761**	**5.8781**	**5.8218**	**1.9117**	**6.2234**	**5.9958**	0.2542	- 2.3543	- 2.4328	0.2743	- 2.2526	- 2.3016
	(0.0275)	**(0.0303)**	**(0.0302)**	**(0.0215)**	**(0.0199)**	**(0.0243)**	(0.6706)	(0.2068)	(0.1943)	(0.6454)	(0.2242)	(0.2143)
INDUSTRY CONCENTRATION^2		- 8.3322	- 8.2418		**- 8.9850**	**- 8.6999**		5.1632	5.2897		5.0082	5.0759
		(0.1171)	(0.1158)		**(0.0888)**	**(0.0968)**		(0.1329)	(0.1249)		(0.1420)	(0.1372)
INDUSTRY GROWTH	- 0.4294	- 0.5269	- 0.4373	- 0.2925	- 0.3920	- 0.3959	0.2296	0.2174	0.2170	0.1809	0.1717	0.2204
	(0.5239)	(0.4326)	(0.5079)	(0.6626)	(0.5572)	(0.5530)	(0.6189)	(0.6402)	(0.6409)	(0.6961)	(0.7129)	(0.6363)
GDP GROWTH	8.4484	8.8494	7.9710	8.0883	8.5869	8.5007	3.3746	2.8859	2.7165	3.4916	3.0397	3.0233
	(0.4351)	(0.4153)	(0.4553)	(0.4422)	(0.4172)	(0.4213)	(0.6536)	(0.7016)	(0.7188)	(0.6416)	(0.6857)	(0.6871)
P/E	- 0.0108	- 0.0136	- 0.0111	- 0.0064	- 0.0094	- 0.0125	- 0.0123	- 0.0119	- 0.0115	- 0.0137	- 0.0133	- 0.0122
	(0.7749)	(0.7199)	(0.7753)	(0.8675)	(0.8106)	(0.7477)	(0.5814)	(0.5936)	(0.6074)	(0.5412)	(0.5530)	(0.5858)
TERM SPREAD	- 4.2876	- 4.5220	- 3.2656	0.3373	0.2922	- 0.9356	7.2932	6.4942	6.2407	7.3748	6.6559	6.8360
	(0.8456)	(0.8382)	(0.8810)	(0.9875)	(0.9892)	(0.9656)	(0.6362)	(0.6743)	(0.6867)	(0.6317)	(0.6661)	(0.6583)
Number of observations	**421**	**285**	**285**	**423**	**287**	**287**	**786**	**922**	**922**	**788**	**924**	**924**
McFadden R-square	**0.1291**	**0.1333**	**0.1253**	**0.1240**	**0.1289**	**0.1268**	**0.1012**	**0.1032**	**0.1033**	**0.1017**	**0.1036**	**0.1029**

Note. The dependent variable in this table equals one if the company grew through M&A in a particular year and zero otherwise. A company and its matching firm are included in the analyses only for the year of M&A. A definition of the explanatory variables and the hypothesized sign of their relation with the M&A probability are presented in Table 1. All explanatory variables are measured in the year before the transaction. The models are estimated separately for horizontal and industry-diversifying takeovers, using four-digit SIC industry codes to classify transactions. The *p*-values are reported in parentheses. Variables that are significant at the 10% level are highlighted in bold.

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Table 6
Logit regression results on domestic versus cross-border M&A decisions.

	Domestic takeovers				Cross-border takeovers			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
C	**2.6561**	**2.6199**	**2.9438**	**3.0073**	- 0.1171	- 0.0834	0.1056	- 0.1254
	(0.0018)	**(0.0021)**	**(0.0006)**	**(0.0006)**	(0.8674)	(0.9054)	(0.8811)	(0.8611)
EBITDA/ASSETS	0.0184				1.1229			
	(0.9849)				(0.2571)			
EBITDA/ASSETS * (1–OWN CONC)		0.4808				0.8833		
		(0.7940)				(0.5998)		
CASH RATIO			- 1.1724				- 0.4728	
			(0.1277)				(0.5000)	
CASH RATIO * (1–OWN CONC)				- 2.2243				0.9841
				(0.1177)				(0.4417)
OWNERSHIP CONCENTRATION	1.5488	1.5622	1.3677	1.0756	0.9545	1.0274	0.9223	1.0177
	(0.2088)	(0.2017)	(0.2600)	(0.3818)	(0.4113)	(0.3810)	(0.4291)	(0.3846)
OWNERSHIP CONCENTRATION^2	**- 3.1108**	**- 3.0824**	**- 2.9613**	**- 2.8902**	**- 2.2526**	**- 2.2485**	**- 2.2442**	**- 2.2516**
	(0.0044)	**(0.0050)**	**(0.0060)**	**(0.0074)**	**(0.0305)**	**(0.0308)**	**(0.0318)**	**(0.0311)**
BANK LOANS/ASSETS	- 0.5445	- 0.5497	**- 0.6779**	**- 0.6480**	- 0.4220	- 0.4114	- 0.4525	- 0.3544
	(0.1527)	(0.1484)	**(0.0841)**	**(0.0969)**	(0.3028)	(0.3189)	(0.2850)	(0.3911)
INTANGIBLES/ASSETS	**8.1001**	**8.0672**	**8.2860**	**8.6805**	**12.0822**	**12.0312**	**12.2965**	**11.5095**
	(0.0331)	**(0.0339)**	**(0.0273)**	**(0.0194)**	**(0.0023)**	**(0.0025)**	**(0.0021)**	**(0.0043)**
INDUSTRY MES	**- 0.3247**	**- 0.3249**	**- 0.3432**	**- 0.3345**	0.0174	0.0172	0.0119	0.0236
	(0.0009)	**(0.0009)**	**(0.0005)**	**(0.0007)**	(0.8420)	(0.8440)	(0.8909)	(0.7881)
INDUSTRY CONCENTRATION	**1.3188**	**1.3102**	**1.4187**	**1.3394**	- 0.0115	- 0.0073	0.0108	- 0.0291
	(0.0532)	**(0.0550)**	**(0.0367)**	**(0.0471)**	(0.9860)	(0.9911)	(0.9868)	(0.9644)
INDUSTRY GROWTH	- 0.4430	- 0.4442	- 0.5172	- 0.5007	0.2153	0.2404	0.2292	0.2407
	(0.4064)	(0.4045)	(0.3304)	(0.3458)	(0.6826)	(0.6469)	(0.6632)	(0.6456)
GDP GROWTH	4.4880	4.3653	4.2693	4.6150	4.2038	3.7427	4.0583	3.9685
	(0.6333)	(0.6411)	(0.6474)	(0.6210)	(0.6053)	(0.6452)	(0.6176)	(0.6252)
P/E	- 0.0304	- 0.0302	- 0.0311	- 0.0328	0.0030	0.0033	0.0017	0.0041
	(0.3507)	(0.3555)	(0.3447)	(0.3197)	(0.8990)	(0.8888)	(0.9436)	(0.8596)
TERM SPREAD	2.8454	2.7258	3.0450	4.0536	- 0.2001	- 0.4023	0.2679	- 0.9671
	(0.8774)	(0.8822)	(0.8688)	(0.8269)	(0.9903)	(0.9806)	(0.9870)	(0.9530)
Number of observations	**627**	**627**	**630**	**630**	**605**	**605**	**606**	**606**
McFadden R-square	**0.1359**	**0.1360**	**0.1390**	**0.1392**	**0.0926**	**0.0914**	**0.0920**	**0.0923**

Note. The dependent variable in this table equals one if the company grew through M&A in a particular year and zero otherwise. A company and its matching firm are included in the analyses only for the year of M&A. A definition of the explanatory variables and the hypothesized sign of their relation with the M&A probability are presented in Table 1. All explanatory variables are measured in the year before the transaction. The models are estimated separately for domestic and cross-border takeovers. The *p*-values are reported in parentheses. Variables that are significant at the 10% level are highlighted in bold.

is significantly positively related to the likelihood of a horizontal takeover. Arguably, given that the cash ratio is never significant in this subsample, the latter finding might reflect that M&A bidders are the better-performing firms in their industries. In the subsample of related deals, EBITDA/ASSETS is indeed larger for event firms (not reported).

As for the entire sample, high levels of ownership concentration reduce the odds of external expansion in the various subsamples. These results thus do not support the idea that firms with concentrated ownership favor non-horizontal or cross-border M&As to diversify owner wealth. Table 7 also reveals that the simple term is significantly positive for listed firms. In this subsample, the non-linear relation has a turning point at 30.1%, stressing that ownership concentration does not rule out takeovers by definition. As an example, large (informed) owners supporting a firm's external growth tend to provide a strong signal re the value of a planned deal, making outsiders willing to finance it. Yet, when these same owners hold a too large stake in their firm, they may forgo external growth in order not to relinquish control.

Table 5 reveals that the proportion of bank loans has a significant negative coefficient in the industry-diversifying M&A equation only. This result is inconsistent with the financial synergy hypothesis, conjecturing that highly indebted firms may seek to reduce their overall risk by diversifying their assets and operations across various industries. Rather, and consistent with the results in Table 4, it might reflect that highly leveraged firms do not consider an as broad set of investment opportunities as firms that are less financially constrained. Table 6 further shows that leverage restricts especially domestic takeovers, which might reflect that domestic deals are largely initiated by private bidders. For private firms, having more highly concentrated ownership on average, internal and external financial constraints are likely to bind more. Finally, Table 7 reports that the proportion of bank loans plays a comparable restrictive role across private and listed firms.

The ratio of intangible to total assets has a significant positive effect in all investigated subsamples. Interestingly but not surprisingly, the industry variables that were significant in Table 4 matter only in industry-related and domestic takeovers. In other words, in industries where incumbents are operating at a lower scale and in more highly concentrated industries, firms tend to participate especially in horizontal and domestic M&As. Extending the models with a quadratic term in industry concentration reveals that this variable is never significant for domestic M&As (not reported), but bears a significant negative relation with the probability of horizontal expansion, as shown in Table 5. This finding thus suggests that further industry consolidation is more difficult to achieve from a certain level of sales concentration onwards (35.3% in column 5). This effect likely reflects that the potential for further M&As is smaller in industries that are already highly concentrated, because of fewer targets being left over or because of antitrust authorities preventing new deals. Together, these results support the market power hypothesis. Next, Table 7 points out that the industry MES is only significant in the subsample of listed bidders.

Finally, industry growth, GDP growth, and aggregate financial market conditions play no role in any of the investigated subsamples.

5. Conclusions

This paper empirically investigates the antecedents of mergers and acquisitions in a typical continental European country during the fifth M&A wave. The article reports on a study using data on 484 Belgian bidders that engaged in 990 M&As during 1997–2007, and matches

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Table 7
Logit regression results on the M&A decisions of public versus private firms.

	Public firms				**Private firms**			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
C	1.5632	1.5844	**1.7488**	**1.7821**	**1.1383**	**1.1640**	**1.4661**	**1.3415**
	(0.1395)	(0.1360)	**(0.0989)**	**(0.0948)**	**(0.0754)**	**(0.0697)**	**(0.0231)**	**(0.0449)**
EBITDA/ASSETS	2.2299				0.5735			
	(0.1550)				(0.4839)			
EBITDA/ASSETS * (1–OWN CONC)		1.1428				0.3570		
		(0.5489)				(0.8332)		
CASH RATIO			- 0.9222				- 0.9820	
			(0.4226)				(0.1102)	
CASH RATIO * (1–OWN CONC)				- 1.2187				- 0.6908
				(0.3730)				(0.6161)
OWNERSHIP CONCENTRATION	**3.3052**	**3.4879**	**3.2080**	**3.1370**	0.2682	0.3126	0.2905	0.1924
	(0.0312)	**(0.0227)**	**(0.0358)**	**(0.0405)**	(0.8110)	(0.7815)	(0.7946)	(0.8640)
OWNERSHIP CONCENTRATION^2	**- 5.4945**	**- 5.5126**	**- 5.3793**	**- 5.4175**	**- 2.0772**	**- 2.0903**	**- 2.1331**	**- 2.0921**
	(0.0033)	**(0.0032)**	**(0.0040)**	**(0.0040)**	**(0.0339)**	**(0.0326)**	**(0.0289)**	**(0.0321)**
BANK LOANS/ASSETS	**- 1.1339**	- 1.0695	- 1.0369	- 1.0475	**- 0.5579**	**- 0.5523**	**- 0.6940**	**- 0.5937**
	(0.0820)	(0.1041)	(0.1158)	(0.1133)	**(0.0790)**	**(0.0817)**	**(0.0364)**	**(0.0680)**
INTANGIBLES/ASSETS	**11.5463**	**11.4458**	**12.4466**	**12.4997**	**14.4106**	**14.3787**	**14.3520**	**14.4208**
	(0.0178)	**(0.0179)**	**(0.0098)**	**(0.0096)**	**(0.0001)**	**(0.0001)**	**(0.0001)**	**(0.0001)**
INDUSTRY MES	**- 0.3962**	**- 0.3871**	**- 0.3917**	**- 0.3928**	- 0.0536	- 0.0554	- 0.0719	- 0.0612
	(0.0045)	**(0.0048)**	**(0.0040)**	**(0.0040)**	(0.4776)	(0.4632)	(0.3440)	(0.4193)
INDUSTRY CONCENTRATION	**1.7214**	**1.7502**	**1.8686**	**1.8528**	**0.9985**	**0.9957**	**1.0631**	**1.0116**
	(0.0609)	**(0.0563)**	**(0.0430)**	**(0.0438)**	**(0.0928)**	**(0.0921)**	**(0.0716)**	**(0.0865)**
INDUSTRY GROWTH	0.2672	0.2853	0.2844	0.2857	- 0.1571	- 0.1522	- 0.2270	- 0.1748
	(0.6961)	(0.6770)	(0.6799)	(0.6784)	(0.7324)	(0.7402)	(0.6223)	(0.7036)
GDP GROWTH	2.1404	2.9716	5.3412	5.3953	7.2800	7.1332	6.6173	6.7439
	(0.8600)	(0.8050)	(0.6570)	(0.6538)	(0.3110)	(0.3220)	(0.3576)	(0.3483)
P/E	0.0143	0.0105	0.0059	0.0057	- 0.0221	- 0.0214	- 0.0212	- 0.0212
	(0.6970)	(0.7734)	(0.8726)	(0.8777)	(0.3432)	(0.3608)	(0.3651)	(0.3648)
TERM SPREAD	10.9337	14.7583	19.2466	19.5619	- 2.0832	- 2.2009	- 3.2329	- 2.7051
	(0.6572)	(0.5442)	(0.4302)	(0.4237)	(0.8876)	(0.8814)	(0.8261)	(0.8543)
Number of observations	**285**	**285**	**287**	**287**	**922**	**922**	**924**	**924**
McFadden R-square	**0.0881**	**0.0835**	**0.0827**	**0.0831**	**0.1254**	**0.1250**	**0.1282**	**0.1265**

Note. The dependent variable in this table equals one if the company grew through M&A in a particular year and zero otherwise. A company and its matching firm are included in the analyses only for the year of M&A. A definition of the explanatory variables and the hypothesized sign of their relation with the M&A probability are presented in Table 1. All explanatory variables are measured in the year before the transaction. The models are estimated separately for public (i.e. listed) and private (i.e. unlisted) firms. The *p*-values are reported in parentheses. Variables that are significant at the 10% level are highlighted in bold.

this sample with firms that did not pursue external growth. Thereby, the research provides a unified analysis of the most widely-cited motives underlying M&As. The results point out that the forces driving deals in Belgium are noticeably different from those underlying Anglo-Saxon M&As during the 1980s, mainly because of variations in corporate ownership and governance structures.

First, the data do not support the notion that managerial incentive problems and/or hubris underlie the takeover decisions of Belgian firms. Yet, high ownership concentration has a negative effect on the M&A probability, consistent with the idea that large owners care about preserving control and thus avoid issuing stock to pay for their M&As. This inference is further confirmed by the high incidence of cash acquisitions in the sample and the lack of significance of stock market prices to explain M&A decisions. Also, M&As tend to occur more frequently in firms with limited reliance on bank debt. In sum, whereas Faccio and Masulis (2005) point out that internally- and externally-imposed financial constraints influence the payment method in European M&As, this article reveals that these same forces restrain the choice to initiate M&As in the first place. Hence, the results in this study may help to explain at least in part why firms in countries with a civil-law legal origin grow slower and are perceived to have smaller growth opportunities than firms in countries with a common-law tradition.

Next, the study provides no support for the financial synergy hypothesis. Also, the analyses refute the idea that realizing operating synergies from economies of scale is a key determinant underlying external growth, as the size of industry incumbents has a negative effect on the M&A probability. Nonetheless, the transfer of intangibles is found to be a principal reason behind the M&A decisions of Belgian firms. Finally, the data point out that securing market power is a major consideration in horizontal and domestic takeover decisions, as industry sales concentration tends to increase the likelihood of such deals. However, from a certain level of sales concentration onwards, further consolidation in the same industry is more difficult to achieve.

The findings of the current study have important implications for future research, particularly in a continental European context, as they offer hints about the potential sources of M&A value creation. Consider, however, the following limitations of the study. First, as the study only investigates bidder, industry, and aggregate financial market variables, some other potentially important motives underlying M&A decisions could not be captured. For example, firms may initiate deals because of unique target technology or managerial capabilities. Likewise, firms with net operating losses carried-forward could be attractive takeover targets. Second, the study examines only M&A transactions in a single continental European country. Although Belgium is representative for the family of countries with a French civil-law legal origin, an avenue for future research is to examine to what extent the results in this study also arise in other countries.

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